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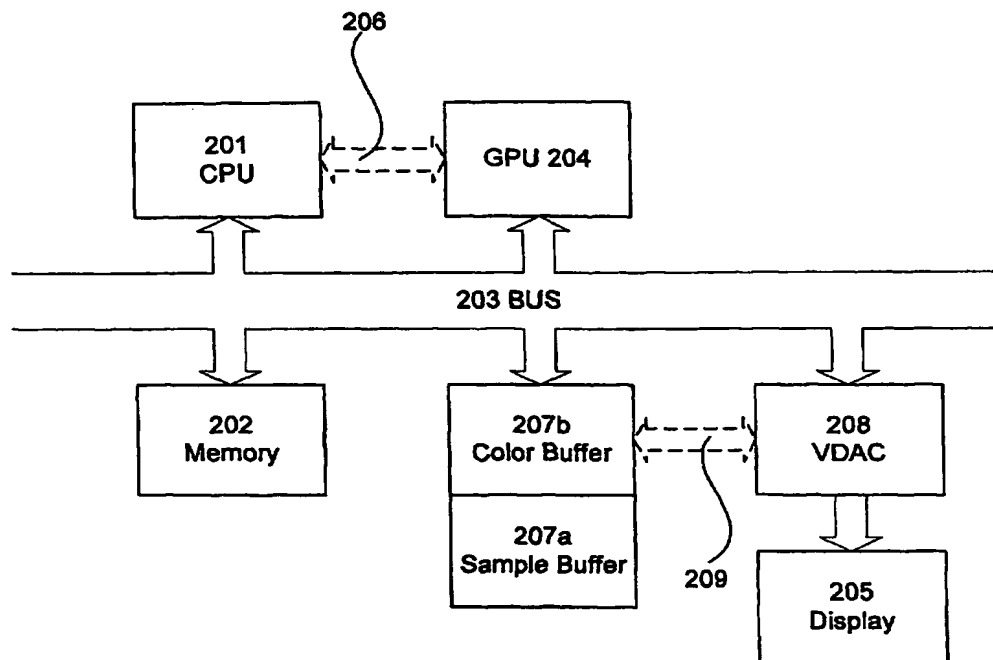
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(54) Title: LOW-COST SUPERSAMPLING RASTERIZATION



(57) Abstract: A sampling pattern covering an array of pixels for use in an anti-aliasing system is disclosed where each, pixel has a pattern of sample points at the edges of the pixel. Moreover is the sample point pattern of each pixel a mirror image and different from the pattern of a directly neighboring pixel



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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 03/13227

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06T11/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, IBM-TDB, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/140706 A1 (MULLIS ROBERT H ET AL) 3 October 2002 (2002-10-03) paragraph '0033! - paragraph '0039!; figures 2,9	1-26
Y	----- NVIDIA CORP.: "hrra: High-resolution antialiasing through multisampling" TECHNICAL BRIEF-NVIDIA CORP., 'Online! 2002, pages 1-8, XP002246880 Retrieved from the Internet: <URL:www.nvidia.com> 'retrieved on 2003-07-08! cited in the application page 2, line 10 -page 4, line 1; figure 1	1-26
A	----- EP 0 463 700 A (PHILIPS ELECTRONICS UK LTD ;PHILIPS NV (NL)) 2 January 1992 (1992-01-02) -----	

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Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002140706	A1	03-10-2002	NONE
EP 0463700	A	02-01-1992	GB 2245805 A 08-01-1992
			GB 2245806 A 08-01-1992
			DE 69127516 D1 09-10-1997
			DE 69127516 T2 26-02-1998
			EP 0463700 A2 02-01-1992
			JP 4233086 A 21-08-1992
			KR 239969 B1 15-01-2000
			US 6088036 A 11-07-2000
			DE 69122557 D1 14-11-1996
			DE 69122557 T2 24-04-1997
			EP 0464907 A2 08-01-1992
			JP 4233672 A 21-08-1992
			US 5394516 A 28-02-1995